

### **Remarks**

Applicants and the undersigned thank the Examiner for acknowledging that the claims are novel over U.S. Patent No. 6,242,264 to Natan, *et al.* ("Natan"), and for withdrawing the previous rejections under 35 U.S.C. § 112, first and second paragraphs, and the previous rejections under 35 U.S.C. § 103(a) over Natan, in view of U.S. Patent No. 6,770,323 to Genzer, *et al.* ("Genzer") and over Natan, in view of U.S. Patent No. 5,656,034 to Kochersperger, *et al.* ("Kochersperger").

Applicants have set forth detailed arguments in previous responses and below, explaining why the claims are novel and non-obvious over the prior art.

Applicants believe that the claims should be in condition for allowance. **However, if the Examiner believes that any issues remain to prevent the allowance of the claims, Applicants respectfully request an interview with the Examiner to expedite allowance of this application.**

### **Rejection Under 35 U.S.C. § 102**

Claims 1-4, 10, 12, 17 and 18 were rejected under 35 U.S.C. § 102(b) as being anticipated by Morgenthaler, *et al.*, Eur. Cells and Materials, 6, 69 (2001) [*sic*] ("Morgenthaler poster"). This is an improper citation since this reference was actually published in **September 2003**, as noted in the Supplemental Information Disclosure Statement filed December 28, 2004 and as shown by the accompanying evidence. Applicants respectfully traverse this rejection.

As noted in the Supplemental Information Disclosure Statement filed December 28, 2004, MORGENTHALER, et al., "Surfaces with a hydrophobicity gradient: Possible applications in biological testing" *European Cells and Materials* 6: 69, was not published in 2001, but was published in 2003. This fact is evident by the Table of Contents for volume 6, supplement 1 of the *European Cells and Materials Journal*, which was submitted on December 28, 2004 (a copy of which is enclosed).

To prevent further confusion, Applicants submit additional evidence regarding the correct publication date for this reference.

Enclosed is a printout of the webpage listing archived issues for *European Cells and Materials Journal*. See <http://www.ecmjournal.org/journal/archive>. As shown in the attached printout, volume 6 was published in **September 2003**, not September 2001. In contrast, volumes 1 and 2 of *European Cells and Materials Journal* were published in 2001.

Also enclosed is a printout of the PubMed abstract from *European Cells and Materials Journal* (2001) 1: 66-81. This printout verifies that volume 1 was published in 2001 and that page 69 of volume 1 is a page from an article by Turner, not the Morgenthaler poster.

The error in the publication year was found in the header for all articles published in volume 6 of the *European Cells and Materials Journal*. The publisher subsequently corrected the mistake, and the publication submitted with the Information Disclosure Statement of December 28, 2004 shows the correct date of 2003 (a copy of which is enclosed). The priority

application, U.S.S.N. 60/459,823, filed March 31, 2003, contains the same information as the Morgenthaler poster.

Therefore the Morgenthaler poster is not prior art under 35 U.S.C. §102.

### **Rejection Under 35 U.S.C. § 103**

Claims 7, 8 and 16 were rejected under 35 U.S.C. § 103(a) as being obvious over the Morgenthaler poster in view of U.S. Patent No. 6,770,323 to Genzer *et al* ("Genzer"). Claims 11, 13, and 15-17 were rejected under 35 U.S.C. § 103(a) as being obvious over the Morgenthaler poster in view of U.S. Patent No. 5,656,034 to Kochersperger, et al. ("Kochersperger"). Applicants respectfully traverse these rejections.

#### ***The Morgenthaler poster***

As noted above, the Morgenthaler poster is not prior art to the present application.

#### ***Genzer***

Genzer was previously discussed at length in the Amendment and Response filed February 4, 2008, and in the Responses filed March 30, 2009 and October 21, 2009. Therefore, Applicants are only highlighting a portion of the differences between Genzer and the claims in this response.

Genzer focuses on vapor deposition methods. Further, Genzer generally teaches away from using liquids to form chemical gradients, noting that prior techniques "are typically rather cumbersome and involve various 'wet chemistry' surface treatments, which is [*sic*] often times hard to control and not applicable to all materials." Genzer, col. 1, lines 59-62. Genzer explains

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that its goal is to “develop methods that would both eliminate the ‘wet chemistry’ environment and produce surfaces with reproducible and tunable surface properties.” Genzer, col. 1, lines 62-65.

With respect to using liquids in the method for forming a surface gradient, in one embodiment, Genzer uses a liquid bath that contains a liquid concentration gradient. The only disclosure possibly relating to an advancing front is the mention of “dipping in a liquid bath” at col. 14, line 37. However, Genzer does not disclose the rate at which the substrate is dipped into the bath. Since Genzer is merely exposing the substrate to a liquid source having a fluid concentration gradient for the purpose of creating a substrate with the same concentration gradient, the entire substrate would likely be in contact with the liquid source for essentially the same time period to allow the component to deposit on the surface of the substrate in a concentration gradient that corresponds with the fluid concentration gradient in the liquid bath.

Thus Genzer does not disclose nor make obvious the step of “exposing the substrate to the advancing front of the first solution, wherein the substrate is exposed to the advancing front of the first solution for a time period sufficient to adsorb the first adsorbate onto the surface of the substrate in an amount decreasing in concentration from a first area on the substrate to a second area on the substrate”, as required by independent claim 1 and its dependent claims.

***Kochersperger***

Kochersperger discloses a syringe pump designed for delivery of small volumes (e.g. 1 to 10  $\mu$ l) at high pressure (Kochersperger, abstract and col. 1, lines 10-13). Kochersperger’s

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syringe pump is designed for micro-scale separations in analytical chemistry (Kochersperger, col. 1, lines 6-13). Kochersperger does not disclose the formation of surface chemical gradients, nor the adsorption of a component onto a substrate. Further, Kochersperger does not disclose nor make obvious the step of “exposing the substrate to the advancing front of the first solution, wherein the substrate is exposed to the advancing front of the first solution for a time period sufficient to adsorb the first adsorbate onto the surface of the substrate in an amount decreasing in concentration from a first area on the substrate to a second area on the substrate”, as required by independent claim 1 and its dependent claims.

Allowance of claims 1-18 is respectfully solicited.

Respectfully submitted,

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Date: May 24, 2010

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